



# 8th Grade Math Syllabus

**Team Katahdin ~ Pelletier ~ 2020-21 ~ Trimester 1**

Each trimester students will complete a wide array of mathematics units. Each unit explains the mathematical principles and reasoning which is covered in the student textbook. Students will be using a variety of resources to meet the daily learning targets including: Prentice Hall (Primary Text), Connected Mathematics, Ready Common Core, Khan Academy, DREAMBOX, etc. We will start the year by pre-testing standards to be taught and will culminate with a post test of standards at the end of each unit.

## **Common Core Standards:**

## **Trimester 1 Priority Standards:**

### **Unit 1: Intro to Algebra and Functions (8.F.1, 8.F.2, 8.EE.5, 8.F.3)**

- **Define, evaluate, and compare functions.**
- **Graph a function as a set of ordered pairs**
- **Use functions to model relationships between quantities. (Linear or not?) Understand not all linear relationships are proportional.**
- **Graph proportional relationships, interpreting the unit rate as the slope of the graph.**
- **Compare two different linear relationships portrayed in different ways (using graphs, tables & equations)**
- **Interpret the equation  $y=mx+b$ , and  $y=mx$  for a line through the origin.**

## **Unit 2: Geometry~ Pythagoras (8.G.6, 8.G.7, 8.G.8, 8.EE.6)**

- \*Explain a proof of the Pythagorean Theorem and its converse.**
- \*Understand and apply the Pythagorean Theorem.**
- \*Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.**
- \* Use similar triangles to explain slope.**

## **Deepening Understanding of Functions (8.F3, 8.F4, 8F5)**

- \*Interpret the equation  $y = mx + b$  as defining a linear function, whose graph is a straight line.**
- \*Give examples of functions that are not linear.**
- \*Construct a function to model a linear relationship between two quantities.**
- \*Determine the rate of change and initial value of the function from a description of a relationship or from two  $(x, y)$  values, including reading these from a table or from a graph.**
- \*Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.**
- \*Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear).**
- \*Sketch a graph that exhibits the qualitative features of a function that has been described verbally.**

## **Systems of Linear Equations (8.EE.7, 8.EE.8)**

- \*Solve linear equations in one variable.**
- \*Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions.**
- \*Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form  $x = a$ ,  $a = a$ , or  $a = b$  results (where  $a$  and  $b$  are different numbers).**
- \*Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.**
- \*Solve systems of two linear equations in two variables.**
- \*Solve real world problems leading to two linear equations in two variables.**

## **Geometry/Transformations (8.G1, 8.G2, 8.G3)**

- \*Verify experimentally the properties of rotations, reflections, and translations**
- \*Describe a sequence that would generate similar figures.**
- \*Describe the effect of dilations, only through the origin, on two dimensional figures using coordinates.**
- \*Describe the effect of translation on two dimensional figures using coordinates.**
- \*Describe the effect of rotations, through the origin or a vertex of the figure, on two dimensional figures using coordinates.**
- \*Describe the effect of reflections (over axis or a line) on two-dimensional figures using coordinates**
- \*Find the measure of interior and exterior angles.**
- \*Conjecture about relationships between angle measurements.**
- \*Use scale factor to determine similarity.**

# Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

## Class Structure and Grading

**Class work/Homework 40%**

**Assessment 30%**

**Khan Academy/DreamBox 30%**

### **Work Expectations:**

It is exceptionally important that students use their daily class-time wisely. They should come to class with all necessary materials. Students are expected to turn work in on the day it is due. If a student can not meet a due date, the student should talk to the teacher before the work is due.

Late work will only be accepted until the next color day( Ex: Assignment given out on Monday/ Due on Thursday- Will be accepted the following Monday(with the best score being an 80) If not passed in on Monday this will result in a grade of “50”/NC(it will be coded with an (!) in Powerschool . If a student misses school he or she should seek out the missed work as soon as they return to school and talk to the teacher about when the missed work will be due. Students will have assigned classwork/ homework from the teacher and will also have Khan Academy & Dreambox expectations/goals which are to be completed weekly. If Remote Learning occurs- all assignment/and grading expectations continue as set up in class.